



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,318	02/09/2004	Shinichi Sato	248740US2	6645

22850 7590 04/22/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

POKER, JENNIFER A

ART UNIT PAPER NUMBER

2832

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/773,318

Applicant(s)

SATO ET AL.

Examiner

Jennifer A. Poker

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2005.  
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.  
4a) Of the above claim(s) 7-12 and 18-26 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-6 and 13-17 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *General Status*

1. This is a second action on the merits of application filed February 9, 2004. Claims 1-26 of amendment received February 4, 2005 are pending. Claims 1-6 and 13-17 are being examined, while claims 7-12 and 18-26, drawn to a non-elected group are withdrawn from further consideration.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 4, 5, 6, 13, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,531,945 to Ahn, et al, in view of U.S. Patent Number 6,791,444 to Masuda, et al.

Regarding claims 1, 13, and 15, Ahn, et al, discloses an inductor comprising:

(1) a plurality of U-shaped conductors embedded within a substrate; the substrate insulating between each U-shaped conductor;

(2) a connecting conductor (220), which bridges an opening edge of the U-shaped conductor to an opening edge of a next U-shaped conductor (figure 1); wherein a rectangular helical coil is formed.

Ahn, et al, discloses the claimed invention except for cutting conductors of a stacked layer member and an embedding material filled in the grooves formed by the cutting.

Masuda, et al, discloses an inductor wherein the inductor is a continuous inductor, which is cut into a predetermined lengths to obtain a plurality of cut inductor bodies, each of the cut inductor main bodies having a material interposed in a clearance between a wind on each end of the conducting wire and each of external surfaces and a clearance between adjoining winds of the conducting wire. The material may be a magnetic material, a dielectric material, or an electrically insulating material. (Column 2, lines 50-56; column 3, lines 3-4).

One skilled in the art, at the time the invention was made would have found it obvious to combine the teachings of Ahn, et al, with the teachings of Masuda, et al, and cut a continuously formed conductor in order to form predetermined sized individual windings.

Regarding claims 4 and 17, Ahn, et al, further discloses the conductive segments can be fabricated from a wide variety of suitable conductive materials, such as metals (column 7, lines 33-35). Ahn, et al, however, does not disclose the photolithography method, however, even though the claim is limited by and defined by the recited process, the determination of patentability of the product is based on the product itself, and does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claim 5, Ahn, et al, further illustrates that the connecting conductors (220) are formed on a flat surface of an opening edge of the U-shaped conductors and the substrate (figure 1).

Regarding claim 6, Masuda, et al, further discloses that the material coating/covering the inductor is one of a magnetic material, a dielectric material, or an insulating material (Column 2, lines 50-56; column 3, lines 3-4).

Art Unit: 2832

4. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,531,945 to Ahn, et al, in view of U.S. Patent Number 6,791,444 to Masuda, et al, as applied to claims 1 and 13 above, and further in view of U.S. Patent Number 6,614,093 to Ott, et al.

Ahn, et al, in view of Masuda, et al, disclose the claimed invention except for the formation of two sets of coils.

Ott, et al, discloses an inductor wherein conductors are connected by a connecting conductor by skipping one of the conductors so as to form two sets of coils. This formation is useful for inductively coupled networks. Furthermore, capacitive effects may arise through surrounding metallization (figure 12; column 7, lines 3-8).

One skilled in the art, at the time the invention was made would have found it obvious to combine the teachings of Ahn, et al, and Masuda, et al, with the teachings of Ott, et al, and form a second rectangular helical coil in order to increase capacitance and to further make the inductor useful for coupled networks.

5. Claims 3 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,531,945 to Ahn, et al, in view of U.S. Patent Number 6,791,444 to Masuda, et al, as applied to claims 1 and 13 above, and further in view of U.S. Patent Number 6,535,093 to Murata, et al.

Ahn, et al, in view of Masuda, et al, discloses the claimed invention except for the embedding material being a resin. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a suitable insulating material, such as a resin, since it has been held to be within the general skill of a worker in the art to select a known material on the

Art Unit: 2832

basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416; however a second reference is incorporated herein.

Murata, et al, discloses an inductor wherein a resin, such as an epoxy resin, is used as a coating to insulate the conductive material (column 3, lines 46-50).

One skilled in the art at the time the invention was made would have found it obvious to combine the teachings of Ahn, et al, and Masuda, et al, with the teachings of Murata, et al, and utilize a suitable insulating material, such a resin, in order to provide sufficient insulation about the conductive elements.

### ***Response to Arguments***

6. Applicant's arguments filed February 4, 2005 have been fully considered but they are not persuasive.

In response to the definition of "groove", examiner has attached a copy of the definition of groove as defined by Webster's Dictionary. The very first definition recites verbatim, "a long narrow channel or depression." The definition does not state that it must be "cut by a natural process or by a tool" as asserted by the applicant. Therefore, the clearance distance between adjoining windings of conductive wire as disclosed by Masuda, et al, (444) is acceptable in terms of the recited definition.

Furthermore, with regard to the process limitations in the claim, "...constituted by cutting conductors of a stacked layer member in U-shapes" and "formed by cutting said conductor of the stacked layer member." Even though the claims are limited by and defined by the recited process, the determination of patentability of the product is based on the PRODUCT ITSELF, and does not depend on its method of production. If the product in the claim is the same as or obvious from a

Art Unit: 2832

product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed Cir. 1985)

In response to applicant argument that Ahn, et al, does not teach a stacked structure, examiner disagrees. It is clearly seen within the structure that there are distinct portions, which constitute the helix. The U-shape is constituted of stacked portions 220 and 230.

As for applicant's argument relating to claim 13, the plurality of substrates, examiner does not believe the functionality is altered by the use of one substrate which insulated the U-shaped conductor on all sides or stacked substrates which is used for the same purpose. The structure, as just recited, does not affect the functionality.

Additional arguments are addressed below:

- (a) objections to the drawings are withdrawn;
- (b) objection to claim 16 is withdrawn.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2832


***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Poker whose telephone number is 571-272-1997. The examiner can normally be reached on 4:30-3:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jap  
April 14, 2005



SPC-A 12-832  
4/15/05